

LETTER

**THE EYE SPLASH INJURIES OF ECHINOCOCCAL FLUID DURING SURGERY OF THE PERITONEAL ECHINOCOCCOSIS: OUR EXPERIENCES DUE TO TWO CASES**

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The surgeon today is obliged to operate on an increasing number of patients who are classified at high risk. The hazards of blood splashes at operation have also been reported suggesting that Hepatitis B virus (HBV), Hepatitis C virus (HCV) and the Human Immunodeficiency Virus (HIV) can be transmitted by conjunctival contamination (1,2). The eye splash injuries due to peritoneal echinococcal fluid have not been determined in the literature. We reviewed our experiences relevant to two surgeons exposed to the eye splash injuries due to peritoneal echinococcal fluid in order to emphasize the risks of transmission of infections via the eye.

This study includes two different surgeons exposed to iatrogenic splashing of echinococcal fluid into their eyes intraoperatively in Dicle University Faculty of Medicine, General Surgery Department in 1996 and 2002.

In 1996, a 54 years old woman who had been operated due to hepatic echinococcosis 18 years ago decided to be operated because of pelvic mass in General Surgery Department. Anti-HCV antibody, HBs Antigen (Ag), Anti-HIV and VDRL tests were found to be negative preoperatively. During the operation, multiloculated cysts masses in various diameters were detected in liver and in the abdomen. At the fourth hour of the operation that lasted 6 hours, during the blunt dissection of the cysts, hydatid fluid splashed accidentally to the eyes of the secondary surgeon (Assistant). Ophthalmologic examination of the surgeon revealed nothing but conjunctival hyperaemia.

Both of the two eyes were instantly irrigated with 1000 cc normal saline (0.09% NaCl) and 0.3% ciprofloxacin ophthalmic drop was recommended for one week.

In 2002, a 32 year old woman underwent operation because of secondary peritoneal echinococcosis. Routine preoperative serologic screening tests of the patient were negative. At the operation, peritoneal echinococcosis constituted from two multiloculated cysts, located in the right lower and median quadrants between the omentum, small intestine and tubo-ovarian structures were detected. Total cyst excision was applied to the patient. During the operation, at the 125<sup>th</sup> minute, hydatid fluid splashed accidentally to the right eye of the primary surgeon (Resident). Ophthalmologic examination of the surgeon who complained about the irritation revealed only conjunctival hyperaemia. Instantly, eye irrigation with 500 cc normal saline (0.09% NaCl) was performed and 0.3% tobramycin ophthalmic drop was recommended for one week.

Hydatid fluid splashed to the eyes of the secondary surgeon in the first case and to primary surgeon's eye in the second case. The splash of the first case was seen in the last third part of the long lasted operation during the extirpation of the cyst with the blunt dissection. Inexperience of the surgeons about the fragility of the cystic tissues and application of blunt dissection instead of sharp dissection may be the causes of eye splash injuries with echinococcal fluid.

The rupture of a hydatid cyst is well known in surgical practice. It can occur spontaneously (3,4), as a result of trauma (5) or surgery (6). In the English literature, echinococcal fluid splash into the eye as a result of iatrogenic hydatid cyst rupture was not reported so far. The fluid splashed into both of the two eyes of our first case while in the other one it splashed to only one eye.

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Anaphylactic reactions or allergic conjunctivitis can be seen, if the surgeon already exposed to hydatid fluid via the eye is sensitive to hydatid fluid previously. However, anaphylactic reactions due to echinococcal fluid have not been reported in the literature. In our cases, despite the splashing of some cyst fluid into the eye, we did not see any evidence of anaphylaxis.

As a result of splashing echinococcal fluid into the eye, the scolices (or daughter hydatids) can cause dacryocystitis or ductal echinococcosis if it is located into the ductus nasolacrimalis and although their entrance to oropharyngeal cavity and consequently to gastrointestinal system is possible, any clinical experience about it has not been reported in the literature. The scolices can also be located in Meibomian, Zeis and Moll glands, leading to bacterial infections via the contamination of infected cystic fluid. Moreover, viruses such as HBV, HCV, HIV those can be found in cystic fluid may result in systemic infections by the way of conjunctiva theoretically. However, there is no information about the issue that whether these viruses can be present in the hydatid fluid.

After the contact of the eyes with hydatid fluid, irrigation with normal saline (0.09% NaCl) was implemented immediately and antibiotic drops were used to the both of two sufferers. The follow up lasted 6 years in the first case and 6 months in the second one and no ophthalmologic problem was developed. Whether the transmission of viral infections are possible via the hydatid cyst fluid is not known currently.

In conclusion, it must be known that the risk of eye splash injury in surgery is much greater than that perceived by most surgeons and trainees. Routine eye protection should be mandatory for all personnel in the operating theatre, in particular for emergency and prolonged elective procedures. All patients who underwent the operations should be searched preoperatively for important viral agents such as HBV, HCV and HIV.

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